

C L A I M S

1. Filter assembly comprising a plurality of longitudinal elongated filter elements (7) that are suitable for separating fluid from solid particles, having an open upper end (2) sealed into a sealing device (8) and a closed bottom end attached to a filter support (10) that is mounted on a filter grid (11), characterized in that the filter grid (11) has a plurality of grid elements (12) together forming the filter grid (11), wherein at least a portion of the cross-section of the grid elements (12) between two adjacent filter elements (7) is pointiform.

2. The filter assembly of claim 1 wherein the cross-section of the grid element (12) is pointiform over at least the total portion of the grid element (12) between the filter elements (7).

3. The filter assembly of claim 1 or 2 wherein the point (17) of the cross-section of the grid element (12) has an angle  $\tau \leq 2 \cdot (90 - \alpha)$ , and the angles  $\tau_1$  and  $\tau_2$  of each of the edges of said point (17) with a perpendicular line (19) are  $\leq (90 - \alpha)$ , wherein  $\alpha$  stands for the angle of repose of the solid particles.

4. The filter assembly of any one of claims 1-3 wherein the filter elements (7) are at least substantially vertically mounted.

5. The filter assembly of any one of claims 1-4 wherein the surface of the grid element (12) is smoothened.

6. The filter assembly of any one of claims 1-5 wherein the filter support (10) is a longitudinal elongated

extension that fits into a recess provided in the filter element (7).

7. The filter assembly of any one of claims 1-6 wherein the filter support (10) is placed on a point of intersection (13) of at least two grid elements (12).

8. The filter assembly of any one of claims 1-7 wherein the ratio of the total area of the horizontal cross-section at the maximum thickness of the grid elements (12):the total area of open parts (15) of the filter grid (11) is less than 1:1.5.

9. The filter assembly of claim 8 wherein the ratio of the total area of the horizontal cross-section at the maximum thickness of the grid elements (12):the total area of open parts (15) of the filter grid (11) is between 1:3.5 and 1:5.

10. Filter grid (11) for accommodating a plurality of filter elements (7) that are suitable for separating fluid from solid particles, comprising filter supports (10), preferably longitudinal elongated extensions that fit into a recess provided in the filter elements (7), characterized in that at least a portion of the cross-section of the grid elements (12) between two adjacent filter elements (7) is pointiform.

11. A filter vessel comprising:

- a longitudinal vessel body (1) having upper (2) and lower ends (3);
- a master tube sheet (18) separating the area of the vessel body (1) containing fluid and the area containing fluid and solid particles;
- at least one inlet port (4) in said vessel body (1) for admitting fluid to be filtered from solid particles;
- outlet ports (5,6) in said vessel for discharging the fluid and for discharging the solid particles;

- at least one filter assembly of any one of claims 1-9.